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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,075	04/09/2001	Kunio Nishimura	Q53366	2214

7590

11/27/2002

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EXAMINER

LISH, PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 11/27/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,075

Applicant(s)

NISHIMURA ET AL.

Examiner

Peter J Lish

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim Rejections - 35 USC § 102

Claims 1-21 and 30-33 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hase et al. (USPN 5,910,383).

Hase et al. teach a graphite powder, for use in a lithium battery negative electrode, with a specific surface area of $.85 \text{ m}^2/\text{g}$, an aspect ratio of not greater than 2, a C_0 value of 6.73 Angstroms, an average particle size of 16 micrometers, with no particles of 48 micrometers or greater and less than 3 wt% of particles 2 micrometers and smaller. While its density, oxidation initiation temperature, and electrical resistance are not specifically stated, it is expected that the

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graphite powder of Hase et al. inherently possesses these properties within the claimed limitations for reasons as follows.

The graphite powder of Hase et al. is produced by the same process as the claimed invention. The mesophase particles are ground and filtered to the desired particle size before graphitization.

Control of the density of graphite particles is admitted to depend upon the control of aspect ratio, average particle size, and particle size distribution (page 27 of disclosure). Because these properties of the reference graphite powder are within the claimed ranges, the density is expected to yield a value within the claimed range.

Control of oxidation initiation temperature of graphite particles is admitted to depend upon chemical activity (reduced by using easily graphitizable carbon materials, or mesophase carbon), aspect ratio, and the specific surface area. Because these properties of the reference graphite powder are within the claimed ranges, and is made from mesophase carbon, the oxidation initiation temperature is expected to yield a value within the claimed range.

Furthermore, because the graphite powder of Hase et al. is identical in its properties to the graphite powder of the invention, it is expected that its behavior under compression will be identical. Therefore, it is expected that when the referenced powder is subject to pressure to give the powder a bulk density of 1.5 g/cm^3 , the specific electrical resistance of the powder along a direction perpendicular to the direction of the pressure is not more than .06 ohm-cm.

Claim Rejections - 35 USC § 103

Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al. as applied above and further taken with admitted prior art (JP-A-8-31422)

Hase et al. do not teach a graphite powder that contains boron. However, applicant's admission (page 3, middle paragraph) discloses a technique of adding boron to carbon powder and graphitizing the mixed powder. It would be obvious to one of ordinary skill in the art to add boron to the mesophase particles of Hase et al. in order to improve the crystallinity of the graphite powder.

Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al. as applied above and further in view of Yoneda et al. (USPN 5,591,547).

Hase et al. teach that for use in the layers of active materials, a binder can be chosen, as desired. Examples include: polyvinyl resins, fluorine-containing resins, etc. (column 6, lines 36-42). Yoneda et al. teach polyvinylidene fluoride as a specific binding material for use with graphite particles in a lithium battery electrode (column 5, lines 1-20). It would have been obvious to one of ordinary skill at the time of invention to use polyvinylidene fluoride as the binder for the graphite particles of Hase et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 703-308-1772. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

PL
November 20, 2002



STUART L. HENDRICKSON
PRIMARY EXAMINER